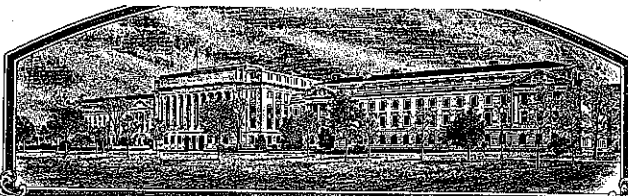


No.

9800224



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Wisconsin Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE

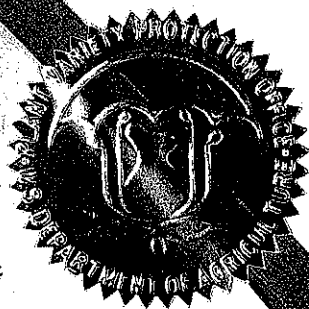
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A SEED OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE SEED. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BARLEY

'KEWAUNEE'



In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twelfth day of September, in the year two thousand one.

Attest:

Paul M. Jacobson

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

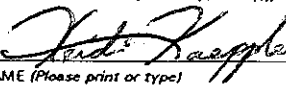
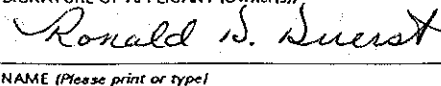
1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) Wisconsin Agricultural Experiment Station H.F. Kaeppler and R.D. Duerst, Authorized MAY 9/12/01		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER Wisconsin Selection KEWAUNEE X3250-6		3. VARIETY NAME KEWAUNEE	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) Agricultural Hall University of Wisconsin-Madison 1450 Linden Drive Madison WI 53706		5. TELEPHONE (include area code) 608/262-0246 608/262-1650		FOR OFFICIAL USE ONLY PVPO NUMBER 9800224	
6. FAX (include area code) 608/262-5217		7. GENUS AND SPECIES NAME Hordeum vulgare L.		8. FAMILY NAME (Botanical) Gramineae	
9. CROP KIND NAME (Common name) Barley		10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) (Common name) Wisconsin Agricultural Experiment Station		FILING AND EXAMINATION FEE: \$ 2,450.00 DATE 4/30/1998	
11. IF INCORPORATED, GIVE STATE OF INCORPORATION		12. DATE OF INCORPORATION		CERTIFICATION FEE: \$ 320.00 DATE 9/4/01	
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS Heidi F. Kaeppler and Ronald D. Duerst Dept. of Agronomy University of Wisconsin-Madison 1575 Linden Drive Madison WI 53706				14. TELEPHONE (include area code) 608/262-0246 608/262-1650	
15. FAX (include area code) 608/262-5217				16. FAX (include area code) 608/262-5217	
16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)					
<input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness <input checked="" type="checkbox"/> Exhibit C. Objective Description of the Variety <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Applicant's Ownership <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in an approved public repository) <input checked="" type="checkbox"/> Filing and Examination Fee (\$2,450), made payable to "Treasurer of the United States" (Mail to PVPO)					
17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act) <input checked="" type="checkbox"/> YES If "yes," answer items 18 and 19 below <input type="checkbox"/> NO If "no," go to item 20					
18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input checked="" type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED		
20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETING IN THE U.S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES If "yes," give names of countries and dates <input type="checkbox"/> NO Released to growers of certified seed in USA on 5/8/97					
21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF APPLICANT (Owner(s))  NAME (Please print or type) Heidi F. Kaeppler			SIGNATURE OF APPLICANT (Owner(s))  NAME (Please print or type) Ronald D. Duerst		
CAPACITY OR TITLE Assistant Professor		DATE 4/27/98		CAPACITY OR TITLE Research Program Manager	
				DATE 4/27/98	

Exhibit A
Kewaunee Barley
Wisconsin

EXHIBIT A: ORIGIN AND BREEDING HISTORY OF THE VARIETY

KEWAUNEE BARLEY (Wisconsin selection X3250-6)

The pedigree of Kewaunee is:

Hazen/Minn M46

The pedigree and chronology of crosses are diagrammed and shown in Figure 1.

Kewaunee was developed by workers in the Department of Agronomy, University of Wisconsin-Madison, Madison, Wisconsin. The final cross, Hazen/Minn M46, was made in the 1984-85 greenhouse crossing nursery. Hazen is a 1984 release (selection ND5569) from North Dakota, while Minn M46 is a selection from Minnesota and was grown in the 1983, 1984, and 1985 Mississippi Valley Barley Nursery. The parentage of M46 is Nordic/Manker//Robust.

The pedigree method of plant breeding was strictly followed and the chronology of progeny generations resulting from the final cross, Hazen/Minn M46, is listed below:

Final cross	1984-85 greenhouse nursery
F ₁ plants	1985 field nursery row 6023
F ₂ population (10-ft. row)	1986 field nursery row 5044
F ₃ line (5-ft. row)	1987 field nursery row 3754
F ₄ line (5-ft. row)	1988 field nursery row 2150
F ₅ line (5-ft. row)	1989 field nursery row 2496

Individual panicles were selected from generations F₂ through F₄, then all plants in the 1989 F₅ line (row 2496) were cut and threshed in bulk. This population was tested as selection X3250-6, which ultimately became Kewaunee.

X3250-6 (F ₆)	1990: Preliminary yield trial at Madison (Singles yield trial series)
X3250-6 (F ₇)	1991: Advanced to main Madison performance trial
X3250-6	1992: Continued in the Madison performance trial

X3250-6	1993: Continued in the Madison trial and advanced to Wisconsin statewide trials at the UW Agricultural Research Stations (ARS) and drill plot trials (5 ft. x 40 ft. plots, four replications).
X3250-6	1994: Continued in all above trials plus small seed increase.
X3250-6	1995: Continued in all above trials plus entered in the Mississippi Valley Barley Nursery (a large multi-state trial). In addition a small increase (Breeders Seed) was grown.
X3250-6	1996: 15 acre increase (Foundation Seed)
X3250-6	1997: Certified seed production

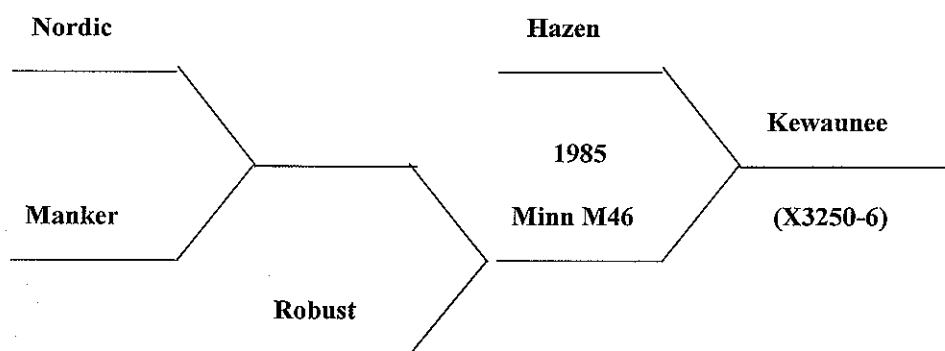
Traits that were closely monitored in all performance trials were grain yield, test weight, straw strength, response to diseases, and grain quality factors associated with malting quality. High yields and good test weights characterized the superior performance shown by X3250-6 (Kewaunee). Due to only average malting characteristics Kewaunee is considered to be a feed barley.

The field of Breeders Seed increase (1995) and the Foundation Seed production field (1996) were inspected repeatedly by the foundation seed program field inspectors. Kewaunee has demonstrated stability for all phenotypic and genotypic plant characteristics consistent with normal environmental influences.

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Figure 1. Pedigree and chronology of crosses for Kewaunee barley.



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PVP Application No. 9800224, Barley, 'Kewaunee'

Addendum to Exhibit A (Origin and Breeding History of the Variety)

The following paragraphs should be added to the original statement:

Kewaunee has been uniform and stable with no "variants" or "off-types" noted since the line was advanced to the main performance trial at Madison in 1991. At that time it was an F₇ and has been grown an additional eight generations through 1999.

The variety name "Kewaunee" was also checked with USDA, prior to naming and release, and it was indicated at that time that there were no known conflicts with other variety names.

PVP Application No. 9800224, Barley, 'Kewaunee'

Addendum to Exhibit B (Novelty Statement)

Page 1 of 2

The following should be substituted for the original novelty statement:

EXHIBIT B: NOVELTY STATEMENT

Kewaunee is most similar to Chilton, another Wisconsin released variety. Both have almost identical bushel weights, maturity (heading) characteristics, and are considered to be feed (non-malting) barley. Characters by which Kewaunee differs from Chilton are as follows:

1. Chilton has been shown to be moderately resistant to powdery mildew in Wisconsin tests, while Kewaunee has been intermediate to intermediate/susceptible.
2. Kewaunee has been consistently, significantly shorter in plant height than Chilton as indicated in the height (inches) readings given in the table below. The data is taken from trials grown at the indicated locations in Wisconsin during 1996 and 1997.

1996:

	Madison	Ashland	Arlington
Chilton	39.0	28.5	40.5
<u>Kewaunee</u>	<u>36.5</u>	<u>26.0</u>	<u>35.0</u>
Ht. diff.	2.5	2.5	5.5
Entries	42	15	14
Reps	4	4	4
L.S.D. .05	1.95	1.73	2.22
C.V. %	3.81	4.48	4.21
S.E.	0.97	0.81	1.03
Planting Date	4-21	5-7	4-26
Harvest Date	8-2	8-19	8-15
Reading Date	7-25	8-10	8-1
Plants/Rep	1800	2000	6600
Samples/Rep	3	3	3

PVP Application No. 9800224, Barley, 'Kewaunee'

Addendum to Exhibit B (continued)

Page 2 of 2

1997:

	Madison	Ashland	Lancaster	Chilton
Chilton	34.0	29.5	32.0	31.0
<u>Kewaunee</u>	<u>29.7</u>	<u>26.3</u>	<u>29.8</u>	<u>26.8</u>
Ht. diff.	4.3	3.2	2.2	4.2
Entries	40	12	12	12
Reps	4	4	4	4
L.S.D. .05	3.63	1.37	2.14	1.75
C.V. %	7.39	3.56	4.80	4.32
S.E.	1.80	0.63	0.98	0.86
Planting Date	4-25	4-23	4-28	5-12
Harvest Date	7-31	8-18	7-31	8-19
Reading Date	7-21	8-12	7-26	8-10
Plants/Rep	1800	2000	1600	1200
Samples/Rep	3	3	3	3

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK AND SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Barley)

OBJECTIVE DESCRIPTION OF VARIETY
BARLEY (*HORDEUM VULGARE*)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT (s)
Wisconsin Agricultural Experiment Station
H. F. Kaeppler and R. D. Duerst, Authorized
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)
Agricultural Hall, University of Wisconsin
1450 Linden Drive, Madison WI 53706

FOR OFFICIAL USE ONLY

PVPO NUMBER 9800224

VARIETY NAME OR TEMPORARY
DESIGNATION

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (i.e. or) when number is either 99 or less or 9 or less.

1. GROWTH HABIT:

1 = SPRING 2 = FACULTATIVE WINTER 3 = WINTER 3 Early Growth: 1 = PROSTRATE 2 = SEMIPROSTRATE
3 = ERECT

2. MATURITY (50% Flowering):

2 1 = EARLY (California Mariout) 2 = MIDSEASON (Betzes) 3 = LATE (Frontier)

1 No. of days Earlier than Robust - } 1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON
 2 No. of days Later than Morex - } 5 = PIROLINE 6 = PRIMUS 7 = UNITAN

3. PLANT HEIGHT (From soil level to top of head):

3 1 = SEMIDWARF 2 = SHORT (California Mariout) 3 = MEDIUM TALL (Betzes) 4 = TALL (Conquest)

2 Cm. Shorter than Robust - } 1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON
 5 Cm. Taller than Stander - } 5 = PIROLINE 6 = PRIMUS 7 = UNITAN

4. STEM:

2 Exertion (Flag to spike at maturity): 1 = 0 - 3 cm. 2 = 3 - 10 cm. 1 Anthocyanin: 1 = ABSENT 2 = PRESENT
3 = 10 - 15 cm.

5 NO. OF NODES (Originating from node above ground)

1 Collar Shape: 1 = CLOSED 2 = V-SHAPED 3 = OPEN 1 Shape of Neck: 1 = STRAIGHT 2 = SNAKY
4 = MODIFIED CLOSED OR OPEN 3 = OTHER (Specify)

5. LEAF:

1 Basal leaf sheath (seedling): 1 = GLABROUS 2 = PUBESCENT 2 Position of flag leaf (at boot stage): 1 = DROOPING
2 = UPRIGHT

2 Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY 1 5 MM. WIDTH (First leaf below flag leaf)

2 2 CM. LENGTH (First leaf below flag leaf) 1 Anthocyanin in leaf sheath: 1 = ABSENT 2 = PRESENT

6. HEAD:

2 Type: 1 = TWO-ROWED 2 = SIX-ROWED 1 Density: 1 = LAX 2 = ERECT (Not dense)
3 = ERECT (Dense)

4 Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 1 Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY
4 = OTHER (Specify) Parallel 3 = WAXY

1 Lateral Kernels Overlap: 1 = NONE 2 = AT TIP 2 Rachis (Hair on edge): 1 = LACKING 2 = FEW 3 = COVERED
3 = 1/4 - 1/2 OF HEAD

7. GLUME:

2 Length: 1 = 1/3 OF LEMMA 2 = 1/2 OF LEMMA 3 Hairs: 1 = NONE 2 = SHORT 3 = LONG
3 = MORE THAN 1/2 OF LEMMA

3 Hair covering: 1 = NONE 2 = RESTRICTED TO MIDDLE 3 = CONFINED TO BAND 4 = COMPLETELY COVERED

3 Awns: 1 = LESS THAN EQUAL TO LENGTH OF GLUMES 2 = EQUAL TO LENGTH OF GLUMES
3 = MORE THAN EQUAL TO LENGTH OF GLUMES

3 Awn Surface: 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

8. LEMMA:

- ☐ 5 Awn: 1 = AWNLESS 2 = AWNLETS ON CENTRAL ROWS, AWNLESS ON LATERAL ROWS
3 = SHORT ON CENTRAL ROWS, AWNLETS ON LATERAL ROWS 4 = SHORT (less than equal to length of spike)
5 = LONG (longer than spike) 6 = HOODED
- ☐ 2 Awn Surface: 1 = AWNLESS 2 = SMOOTH 3 = SEMISMOOTH 4 = ROUGH
- ☐ 2 Teeth: 1 = ABSENT 2 = FEW 3 = NUMEROUS ☐ 1 Hair: 1 = ABSENT 2 = PRESENT
- ☐ 3 Shape of base: 1 = DEPRESSION 2 = SLIGHT CREASE ☐ 1 Rachilla Hairs: 1 = SHORT 2 = LONG
3 = TRANSVERSE CREASE

9. STIGMA:

- ☐ 2 Hairs: 1 = FEW 2 = MANY

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USDA-AMS-PVPO

10. SEED:

- ☐ 2 Type: 1 = NAKED 2 = COVERED ☐ 1 Hairs on Ventral Furrow: 1 = ABSENT 2 = PRESENT
- ☐ 2 Length: 1 = SHORT (8.0 mm.) 2 = SHORT TO MIDLONG (7.5 - 9.0 mm.) 3 = MIDLONG (8.5 - 9.5 mm.)
4 = MIDLONG TO LONG (9.0 - 10.5 mm.) 5 = LONG (10.0 mm.)
- ☐ 2 Wrinkling of hull: 1 = NAKED 2 = SLIGHTLY WRINKLED 3 = SEMIWRINKLED 4 = WRINKLED
- ☐ 1 Aleurone Color: 1 = COLORLESS (White or Yellow) 2 = BLUE
- ☐ 1 ☐ 1 PERCENT ABORTIVE ☐ 3 ☐ 9 GMS. PER 1000 SEEDS

11. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

- | | | | |
|---------------------------------------|---|---|---|
| <input type="checkbox"/> 1 SEPTORIA | <input type="checkbox"/> 0 NET BLOTCH | <input type="checkbox"/> 0 SPOT BLOTCH | <input type="checkbox"/> 1 POWDERY MILDEW |
| <input type="checkbox"/> 1 LOOSE SMUT | <input type="checkbox"/> 0 BACTERIAL BLIGHT | <input type="checkbox"/> 0 COVERED SMUT | <input type="checkbox"/> 0 FALSE LOOSE SMUT |
| <input type="checkbox"/> 2 STEM RUST | <input type="checkbox"/> 1 LEAF RUST | <input type="checkbox"/> 0 SCAB | <input type="checkbox"/> 1 SCALD |
| <input type="checkbox"/> 0 AY | <input type="checkbox"/> 0 BSMV | <input type="checkbox"/> 0 BYDV | <input type="checkbox"/> 0 OTHER (Specify) |

12. INSECT: (0 = Not tested, 1 = Susceptible, 2 = Resistant)

- | | | | |
|--|--|--|-------------------------------------|
| <input type="checkbox"/> 0 GREEN BUG | <input type="checkbox"/> 0 ENGLISH GRAIN APHID | <input type="checkbox"/> 0 CHINCH BUG | <input type="checkbox"/> 0 ARMYWORM |
| <input type="checkbox"/> 0 GRASS HOPPERS | <input type="checkbox"/> 0 CEREAL LEAF BEETLE | <input type="checkbox"/> 0 OTHER (Specify) | |
| HESSIAN FLY RACES | | | |
| <input type="checkbox"/> 0 GP | <input type="checkbox"/> 0 A | <input type="checkbox"/> 0 B | <input type="checkbox"/> 0 C |
| <input type="checkbox"/> 0 D | <input type="checkbox"/> 0 E | <input type="checkbox"/> 0 F | <input type="checkbox"/> 0 G |

13. CHEMICAL (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

- ☐ - DDT ☐ 2 OTHER (Specify) Glean, MCPA, Banvel

14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Robust	Seed size	Robust
Leaf size	Chilton	Coleoptile elongation	Hazen
Leaf color	Chilton	Seedling pigmentation	---
Leaf carriage	Hazen		

REFERENCES: The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

1. Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.
2. Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture, pp. 61 - 84.
3. Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

COLOR: Nickerson's or any recognized color fan may be used to determine color of the described variety.

9800224

Exhibit D
Kewaunee Barley
Wisconsin

EXHIBIT D: ADDITIONAL DESCRIPTION OF KEWAUNEE

Performance data for 1994, 1995, and 1996 are summarized in tables 1-3 in the May 8, 1997 letter announcing intent to release. Additional yield performance data for 1995, 1996, and 1997 are summarized in Table 4.

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TABLE 1. ONE, TWO, AND THREE YEAR SUMMARIES OF BARLEY VARIETIES GROWN IN PERFORMANCE TRIALS IN WISCONSIN, 1994-1996.

9800224

BARLEY GRAIN YIELD (BU/A)

INDIVIDUAL LOCATIONS

VARIETY OR SELECTION	ARL/MAD DRILL PLOTS	MAD. NUR.	ASH- LAND	LAN- CASTER	MARSH- FIELD	CHIL- TON	6-LOCATION AVG. R
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ONE YEAR BARLEY SUMMARY---1996 ONLY

KEWAUNEE	112.3	82.2	94.2	68.2	76.6	94.9	88.1	1
BOUNTY	104.2	84.2	90.8	57.6	72.8	81.4	81.8	3
CHILTON	89.5	75.0	93.7	68.1	51.9	84.2	77.1	4
EXCEL	92.6	68.5	93.8	60.2	50.9	85.0	75.2	6
HAZEN	111.0	81.8	84.5	64.1	62.5	91.8	82.6	2
MOREX	94.5	72.9	83.5	41.9	62.2	78.7	72.3	8
ROBUST	91.4	58.3	95.0	57.5	63.3	94.3	76.6	5
STANDER	81.0	63.4	91.4	64.4	56.5	78.4	72.5	7
AVERAGE	98.3	74.0	91.2	60.2	62.9	87.3	79.0	
L.S.D. .05	6.5	8.8	11.1	10.3	8.5	11.6	3.9	
NO. OF YEARS	1	1	1	1	1	1		

TWO YEAR BARLEY SUMMARY---1995 1996.

12 LOCATION

KEWAUNEE	98.7	73.8	81.4	69.9	51.3	73.1	74.7	1
BOUNTY	88.1	71.6	77.8	60.3	49.4	64.6	68.6	3
CHILTON	83.3	63.2	75.6	62.6	37.9	67.8	65.1	5
EXCEL	81.1	63.8	74.8	60.5	37.7	66.2	64.0	6
HAZEN	96.2	72.4	71.1	65.0	46.8	68.8	70.0	2
MOREX	81.2	57.8	68.7	46.2	44.5	59.6	59.7	8
ROBUST	83.1	59.9	80.3	61.7	43.3	67.9	66.0	4
STANDER	80.6	59.7	70.2	66.9	41.5	59.8	63.1	7
AVERAGE	87.8	66.6	75.9	61.6	44.5	66.8	67.2	
L.S.D. .05	5.6	6.1	8.0	9.5	4.9	5.7	2.7	
NO. OF YEARS	2	2	2	2	2	2		

THREE YEAR BARLEY SUMMARY---1994 1995 1996.

18 LOCATION

KEWAUNEE	102.3	77.2	72.1	61.4	45.9	66.3	70.9	1
BOUNTY	93.7	74.1	69.3	54.4	42.5	63.5	66.3	4
CHILTON	88.8	62.7	63.1	53.8	34.3	61.5	60.7	7
EXCEL	92.2	67.1	65.3	54.8	35.8	60.7	62.6	5
HAZEN	102.6	74.6	65.7	55.7	41.0	62.5	67.0	2
MOREX	86.6	58.4	59.1	44.3	37.7	56.8	57.1	8
ROBUST	90.9	64.6	73.3	54.9	39.6	62.6	64.3	4
STANDER	88.1	64.1	62.2	57.6	39.4	58.7	61.7	6
AVERAGE	94.2	68.8	67.2	54.7	40.0	62.2	64.5	
L.S.D. .05	4.0	4.9	6.1	6.8	5.0	4.8	2.2	
NO. OF YEARS	3	3	3	3	3	3		

Table 2. Grain yields (bu/a) for barley varieties grown in performance trials at eight Wisconsin locations in 1994, 1995, and 1996.

Arl/Mad									
Variety	Drill Plots	Madison	Ash- land	Lan- caster	Marsh- field	Chilton	Spooner	Sturgeon Bay	8-loc. mean
No. of tests	3	3	3	3	3	3	1	1	20
Kewaunee	102.3	77.2	72.1	61.4	45.9	66.3	75.1	88.9	72.0
Bounty	93.7	74.1	69.3	54.4	42.5	63.5	74.5	78.2	67.3
Chilton	88.8	62.7	63.1	53.8	34.3	61.5	64.9	85.1	62.1
Excel	92.2	67.1	65.3	54.8	35.8	60.7	57.3	86.6	63.5
Hazen	102.6	74.6	65.7	55.7	41.0	62.5	77.8	86.2	68.5
Morex	86.6	58.4	59.1	44.3	37.7	56.8	64.9	83.8	58.8
Robust	90.9	64.6	73.3	54.9	39.6	62.6	76.9	85.3	66.0
Stander	88.1	64.1	62.2	57.6	39.4	58.7	57.8	84.6	62.6
Mean	93.2	67.9	66.3	54.6	39.5	61.6	68.7	84.8	65.1
L.S.D..05	4.0	4.9	6.1	6.8	5.0	4.8	11.7	12.1	2.1

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Table 3. Yield summary for named variety checks and Wisconsin barley variety Kewaunee (X3250-6) in the Mississippi Valley Uniform Regional Barley Nursery in 1995 and 1996.

1995 results:

Variety or Selection	Carrington		Fargo		Crookston		Morris		Brandon		Watrtwn		Madison		Caro		Saskatoon		9-loc.	
	ND		ND		MN		MN		Manit.		SD		WI		MI		Sask.		Avg.	
Excel	63.0		70.4		95.0		98.8		76.0		86.7		59.1		76.0		122.0		83.0	
Stander	59.1		72.7		98.8		95.8		76.7		78.0		55.8		83.3		126.4		83.0	
Kewaunee (X3250-6)	66.5		78.5		94.6		81.4		91.9		82.6		65.5		87.0		116.4		85.0	

1996 results:

Variety or Selection	Carrington		Fargo		Langdon		Mrhead		Crookston		Watrtwn		Madison		Mead		8-loc.	
	ND		ND		ND		MN		MN		SD		WI		NE		Avg.	
Morex	66.2		58.9		53.4		50.9		103.5		54.5		72.9		33.1		61.7	
Robust	80.4		66.8		57.8		49.6		97.1		65.8		58.3		35.1		63.9	
Stander	81.0		74.7		71.6		43.0		110.1		64.4		63.4		25.7		66.7	
Kewaunee (X3250-6)	80.5		65.4		68.4		46.8		110.6		72.2		82.2		32.0		69.8	

TABLE 4 . SUMMARY OF BARLEY VARIETIES GROWN IN PERFORMANCE TRIALS AT SEVERAL LOCATIONS IN WISCONSIN, 1995-1997.

BARLEY GRAIN YIELD (BU/A)											
INDIVIDUAL LOCATIONS											
VARIETY OR SELECTION	ARL. DRILL PLOTS	MAD. NUR.	ASH- LAND	LAN- CASTER	MARSH- FIELD	CHIL -TON	SPOO -NER	STURG -EON BAY	WITHOUT PLOTS AVG.	WITH PLOTS R	WITH PLOTS AVG. R
ONE YEAR BARLEY SUMMARY---1997 ONLY									7 LOC.	8 LOC.	
BOUNTY	101.8	47.1	83.8	56.0	84.1	65.4	34.4	79.5	64.3	6	69.0 6
CHILTON	79.2	53.6	78.5	33.9	71.6	64.4	26.7	98.9	61.1	7	63.4 7
EXCEL	111.6	59.2	102.8	46.1	83.3	73.3	35.6	105.6	72.3	3	77.2 1
HAZEN	104.9	55.5	95.0	47.7	88.1	68.2	36.1	90.8	68.8	5	73.3 4
KEWAUNEE	108.5	57.4	92.2	46.3	100.6	70.9	34.9	106.1	72.6	2	77.1 2
ROBUST	101.2	53.3	88.8	48.2	98.5	64.2	34.2	95.1	68.9	4	72.9 5
STANDER	99.3	47.5	98.3	64.7	102.9	67.4	39.3	93.6	73.4	1	76.6 3
AVERAGE	100.9	53.4	91.3	49.0	89.9	67.7	34.5	95.7	68.8		72.8
L.S.D. .05	5.3	7.2	10.5	12.2	7.7	8.9	7.1	16.9	3.8		3.3
NO. OF YEARS	1	1	1	1	1	1	1	1			
TWO YEAR BARLEY SUMMARY---1996,1997.									14 LOC.	16 LOC.	
BOUNTY	103.0	65.6	87.3	56.8	78.5	73.4	65.5	78.9	70.7	6	74.8 5
CHILTON	84.4	64.3	86.1	51.0	61.8	74.3	45.8	91.9	67.9	7	70.0 7
EXCEL	102.1	63.9	98.3	53.2	67.1	79.2	46.5	96.1	72.0	5	75.8 3
HAZEN	108.0	68.7	89.8	55.9	75.3	80.0	57.0	88.5	73.6	2	77.9 2
KEWAUNEE	110.4	69.8	93.2	57.3	88.6	82.9	55.0	97.5	77.8	1	81.8 1
ROBUST	96.3	55.9	91.9	52.9	80.9	79.3	55.6	90.2	72.4	3	75.4 4
STANDER	90.2	55.5	94.6	64.6	79.7	72.9	48.6	89.1	72.1	4	74.4 6
AVERAGE	99.2	63.4	91.6	56.0	76.0	77.4	51.9	90.3	72.1		75.7
L.S.D. .05	4.1	5.6	7.6	7.9	5.7	7.2	6.6	10.2	2.7		2.4
NO. OF YEARS	2	2	2	2	2	2	2	2			
THREE YEAR BARLEY SUMMARY---1995,1996,1997.									19 LOC.	22 LOC.	
BOUNTY	92.7	63.5	79.8	58.9	61.0	64.8	54.5	78.9	65.8	6	69.5 4
CHILTON	81.9	60.0	76.6	53.0	49.1	66.6	45.8	91.9	62.7	7	65.3 7
EXCEL	91.3	62.3	84.1	55.7	52.9	68.6	46.5	96.1	66.1	4	69.5 4
HAZEN	99.1	66.8	79.1	59.2	60.6	68.6	57.0	88.5	68.1	2	72.3 2
KEWAUNEE	102.0	68.4	85.0	62.0	67.7	72.4	55.0	97.5	72.2	1	76.3 1
ROBUST	89.1	57.8	83.1	57.2	61.7	66.7	55.6	90.2	66.9	3	69.9 3
STANDER	86.8	55.6	79.6	66.2	62.0	62.3	48.6	89.1	65.9	5	68.8 6
AVERAGE	91.8	62.1	81.0	58.9	59.3	67.1	51.9	90.3	66.8		70.2
L.S.D. .05	4.0	4.7	6.3	7.5	4.1	4.8	6.6	10.2	2.4		2.1
NO. OF YEARS	3	3	3	3	3	3	2	2			

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*Improving Agriculture Through Crop Biotechnology,
Genetics and Production Research*

DATE: May 8, 1997

TO: Experiment Station Directors, Department Chairpersons, Barley Breeders,
Foundation Seed Managers, Crop Improvement Managers, and NCS-1 Committee
Representatives in North Central and Other Interested States.

FROM: Dr. S.H. Duke, Chairperson, Department of Agronomy, University of Wisconsin-
Madison.

SUBJECT: Release of Wisconsin Barley Selection X3250-6 with the name "**Kewaunee**"

The Wisconsin Agricultural Experiment Station is releasing Foundation Seed of Wisconsin barley selection X3250-6 (Kewaunee) for planting in spring of 1997. A major seed increase of Kewaunee was grown in 1996 and approximately 750 bushels are available for distribution to Certified growers in 1997. Kewaunee is a high-yielding barley variety tested as Wisconsin selection X3250-6. The pedigree of Kewaunee is Hazen/M46. Kewaunee has been evaluated in statewide trials since 1993. It was an entry in the Mississippi Valley Uniform Regional Barley Nursery in 1995 and 1996.

Kewaunee has performed very well in Wisconsin statewide trials for the past three years, ranking 1st for one, two and three-year periods, 1994-1996. Grain yield, agronomic, disease, and grain quality data for named barley varieties and Kewaunee are presented in Tables 1 and 2. Kewaunee heads at about the same time as Chilton and Morex and is approximately the same height as Hazen and Robust. Kewaunee has good test weight, lodging resistance, and resistance to mildew. Kewaunee has smooth awns and at present should be considered as a feed-type barley.

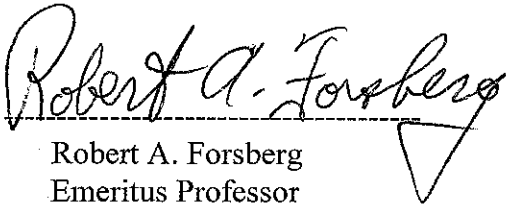
Kewaunee ranked 3rd out of 33 entries in 1995 and 4th out of 32 entries in 1996 in the Mississippi Valley Uniform Regional Barley Nursery. MVURBN agronomic data for Kewaunee and for check varieties are presented in Table 3.

Kewaunee will be protected under the U.S. Plant Variety Protection Act (Title V option). Three classes of seed will be allowed: breeder, foundation and certified. Additionally, Kewaunee will be a "licensed" variety, therefore only licensed growers can produce certified seed. Seed sales of Kewaunee will be subject to a variety development fee of \$0.25 per bushel that will apply to certified seed sold. Please direct seed requests to Mr. Paul Ehrhardt, Wisconsin Foundation Seeds, Department of Agronomy, 1575 Linden Drive, Madison, WI 53706-1597, (608) 262-1377.

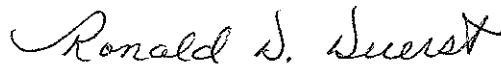
Exhibit E
Kewaunee Barley
Wisconsin

EXHIBIT E: BASIS OF APPLICANTS OWNERSHIP

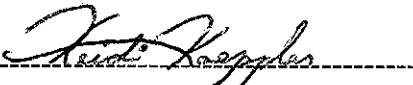
The cultivar (Kewaunee), for which Plant Variety Protection is hereby sought, was developed by Dr. Robert A. Forsberg, Emeritus Professor and Ronald D. Duerst, Research Program Manager, from the Department of Agronomy, University of Wisconsin-Madison. Dr. Heidi F. Kaeppler, Assistant Professor, succeeded Dr. Forsberg in 1996 and is currently principle investigator for the project. By agreement, all rights to 'Kewaunee' are assigned to The Wisconsin Agricultural Experiment Station.



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EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) Heidi F. Kaeppler Ronald D. Duerst WISCONSIN Agricultural Experiment Station	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME KEWAUNEE
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) Dept. of Agronomy 1575 Linden Drive Madison, WI 53706	5. TELEPHONE (include area code) 608-262-0246	6. FAX (include area code) 608-262-5217
7. PVPO NUMBER 9800224		
8. Does the applicant own all rights to the variety? Mark an "X" in appropriate block. If no, please explain. <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO All rights to variety were assigned to "The Wisconsin Agricultural Experiment Station", University of Wisconsin, upon release		
9. Is the applicant (individual or company) a U.S. national or U.S. based company? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO If no, give name of country		
10. Is the applicant the original owner? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If no, please answer one of the following: a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)? <input type="checkbox"/> YES <input type="checkbox"/> NO If no, give name of country b. If original rights to variety were owned by a company(ies), is(are) the original owner(s) a U.S. based company? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO If no, give name of country		
11. Additional explanation on ownership (if needed, use reverse for extra space):		

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

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